58. *Descriptions of Two New Neritic Tintinnoinea, Tintinnopsis japonica and Tps. kofoidi with a Brief Note on an Unicellular Organism Parasitic on the Latter.*[1]

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Tintinnopsis japonica sp. nov.

(Figure 1.)

Description.—Lorica comparatively large, stout capsular, 1.34–1.67 oral diameters in length[2]; oral rim usually entire, sometimes smoothly uneven; bowl widely cylindrical in the anterior two-thirds of the total length; aboral region hemispherical or convex conical, contracting to a rounded aboral end; wall almost uniform in thickness, neatly agglomer-

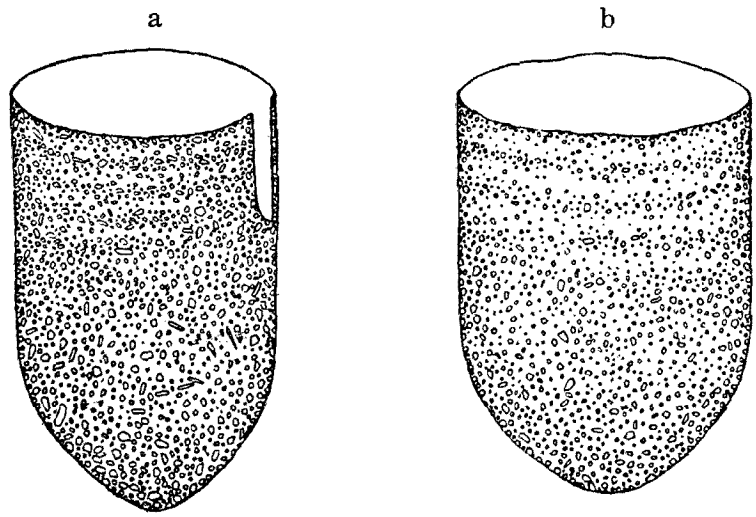

Figure 1. *Tintinnopsis japonica* sp. nov. ×200.

1) Contribution No. 30 from the Zoological Institute, Faculty of Science, Hokkaido Imperial University, Sapporo.

2) After C. A. Kofoid and A. S. Campbell's formulae as given in their notable work entitled "A Conspectus of the Marine and Fresh-water Ciliata belonging to the Suborder Tintinnoinea, with Descriptions of new Species principally from the Agassiz Expedition to the Eastern Tropical Pacific 1904–1095." Univ. California Publ. Zool., Vol. 34 (1929).

ated with small foreign particles, showing a few faint spiral turns by arrangement of the agglomerated material in the suboral part.

Dimension.—Length, 218 (206–233)μ; oral diameter, 149 (138–167)μ; thickness of the wall, 2.5–3.0μ.

Locality.—Type locality, off the eastern coast of Aomori-Ken, Japan.

Comparison.—Differs from *Tintinnopsis rotundata* Jörgensen in larger size and fine agglomerations, from *Tps. mayeri* Daday in the rounded aboral end, and from *Tps. cyathus* Daday in the absence of an oral flare.

Remarks.—The species was frequently found in the plankton obtained by the steamer "Oshoro-Maru" of the Fishery College of the Hokkaido Imperial University at the station, 41°13′54″ N., 141°25′15″ E., on April 2, 1930, associating with a great amount of diatoms belonging to the following genera, *Biddulphia*, *Chaetoceras*, *Coscinodiscus*, *Fragilaria*, and *Thalassiosira*. The temperature of the sea-water at the surface was 7° C. at the station where the collection was made. Therefore it seems true that the species is grouped rather in the cold water forms of the Genus *Tintinnopsis*.

Tintinnopsis kofoidi sp. nov.

(Figures 2 and 3.)

Description.—Lorica elongated, inverted bottle-shaped, 4.5–7.4 oral diameters in length, consisting of a bowl contracting abruptly to an aboral horn; oral rim formed irregularly, without modification; bowl cylindrical, conical (45°–63°) aborally; aboral horn tubular, 0.12–0.21 of the total length in length, about 0.28 of the oral diameter in transdiameter at its middle; aboral tip open usually obliquely, but not by a greatly elongated lateral opening; wall thin, subuniform in thickness, irregularly agglomerated, without definite spiral organization.

Dimension.—Length, 185 (160–188)μ; oral diameter, 36 (35–38)μ; length of the aboral horn, 35 (23–44)μ; thickness of the wall, 1.5–2.0μ.

Localities.—Type locality, Matsushima Bay; other localities, Mutsu Bay and the Sea of Okhotsk.

Comparison.—Differs from *Tintinnopsis cylindrica* Daday in the presence of the aboral opening, and

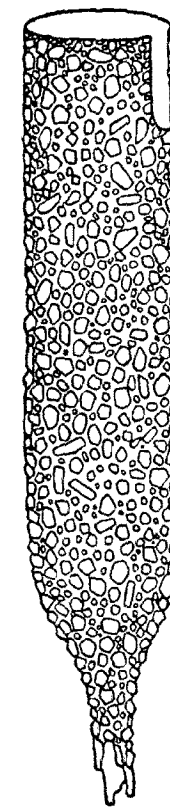

Figure 2. *Tintinnopsis kofoidi* sp. nov. ×450.

from *Tps. radix* (Imhof) in lack of spiral structure, more abrupt contraction of the bowl, and less lateral development of the aboral opening.

Remarks.—The species is commonly found in the plankton during May and June in Matsushima Bay, sometimes in Mutsu Bay, and rarely in the Sea of Okhotsk in summer. It is probably a widely distributed species of the *Tintinnoinea* in the neritic area of Japanese waters.

Parasite.—I have had a chance to investigate an unicelular parasite on this species by examining the stained specimens of *Tintinnopsis kofoidi* collected in Matsushima Bay in May, 1930.

A. S. Campbell (1926)[1] has previously recorded notes on the intranuclear parasite, *Karyoclastis tintinni* Campbell, parasitic on the nucleus of *Stenosemella nivalis* (Meunier) [=*Tintinnopsis nucula* (Fol)]. In the present case, the parasitic organisms attack the protoplasm (Figs. 3 a, b). They are composed of a single spherical cell which is 10–15μ in diameter. The clear layer surrounding the nucleus is generally observed in the stained material, and the vacuole is sometimes found in the parasite in the resting stage. At first, a single parasite forces an entrance into the cytoplasm of the host (Fig. 3 a), and then increases in number repeating by binary division (Fig. 3 b). As the result of this many parasites in the host look like the spores of the host, as they have been often so believed. The unicellular parasites like this will surely be found

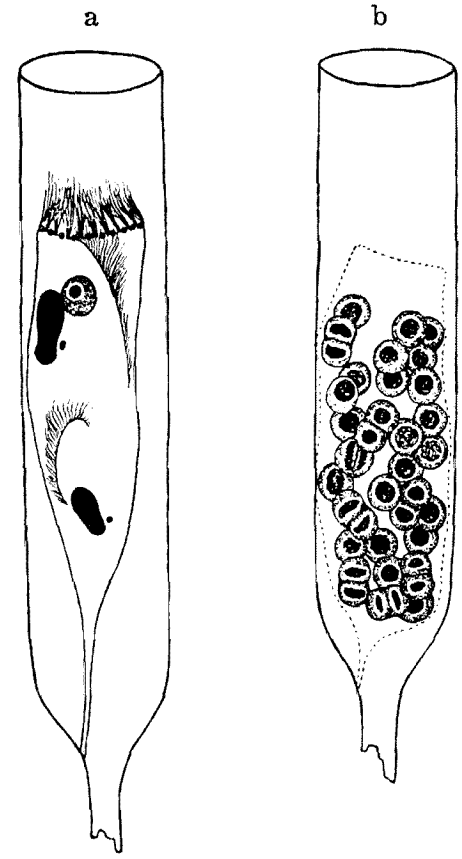

Figure 3.
Tintinnopsis kofoidi sp. nov. ×400.
a. Specimen parasitized by a single parasite
b. Numerous parasites in the protoplasm of the host.

1) Campell, A. S.: The Cytology of *Tintinnopsis nucula* (Fol) Laackmann with an Account of its Neuromotor Apparatus, Division, and a new intranuclear Parasite. Univ. California Publ. Zool., Vol. 29, No. 9 (1926).

occurring in other species of the *Tintinnoinea* in the future. Therefore, at present, the author is briefly reporting on the parasite as above, calling attention of other workers to this parasitism.